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6 April 1959

MEMORANDUM FOR: Deputy Assistant Director/Production
Office of Scientific Intelligence

SUBJECT: ORR Review of Draft OSI Publication, Soviet Research in Acetylene Chemistry, PD 6-35

1. In compliance with the request made in your memorandum of 24 March 1959, the subject draft has been carefully reviewed in ORR. We found the paper very interesting and, on the whole, consistent with available economic intelligence on the subject.

2. With regard to certain specific passages we feel that in the interest of clarity and accuracy some rewording is probably desirable. Our suggestions with respect to these passages are as follows:

a. Page 3, paragraph 1 - "The work of these acetylene chemists is of good quality and all appear to be doing the same sort of research work they did when they were students. Measured by today's standards, this work is characterized by a lack of originality."

Comment: It is a little difficult to reconcile "research of good quality" with "lack of originality" since it seems that originality is a sine qua non of good research. Perhaps further explanation and rephrasing of the concepts involved here would clarify the issue.

b. Page 6, last paragraph - "however, petroleum and natural gas, which offer alternate sources of acetylene, have not yet been exploited by the Soviets."

Comment: A large pilot plant for the production of acetylene by the electro-cracking of methane was put into operation at Saratov in January 1959. Other installations for the petrochemical production of acetylene are planned for Stalinogorsk and Lisichansk. Perhaps the quoted sentence should be modified to show that the Soviets have reached the pilot plant stage in the production of acetylene from natural gas. /In view of the fact that such a pilot plant is in operation, it may be advisable also to modify paragraph 3, page 8./

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c. Page 7, paragraph 1 - "Acetylene in the USSR is made almost completely from calcium carbide. The Soviets have available large resources of coal and limestone (calcium carbide raw materials) and are expanding hydro-electric power installations in the areas of these resources in order to generate the necessary electrical energy so that the carbide method will continue for many years to be a primary source of acetylene."

Comment: Expansion of hydro-electric facilities in areas where large resources of coal and limestone are available does not necessarily imply a continuing large expansion of carbide production - On the contrary, the Russian now appear to be emphasizing the use of petrochemical raw materials to obtain acetylene during the Seven Year Plan. The following quote /Planovoye Khozyaystvo No. 6, June 58, p. 22/ illustrates that the Russians recognize the substantial economic advantages of the petrochemical route:

> "To achieve the planned volume of increase of synthetic materials based on acetylene, it is necessary to increase its output in 8 years by about 500,000 tons. By the carbide method this would require 2.5 billion rubles. By the methane method the capital outlays are about 1.2 billion rubles."

Some rewording is probably desirable here. We agree that carbide probably will continue for many years to be a primary source of acetylene but we feel that expansion of carbide production will continue only until the Russians are able to meet increased requirements for acetylene via the petrochemical route.

d. Page 9, section III, paragraph 2 - "The largest chemical use of acetylene in the USSR is for making acetaldehyde ..."

Comment: We have reservations about this statement - The largest use may be manufacture of chloroprene type synthetic rubber - Suggest rephrasing as follows: "One of the largest chemical uses of acetylene in the USSR is for making acetaldehyde ..."

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